Abstract Submitted to the
International Conference on Strongly Correlated Electron Systems
University of Michigan, Ann Arbor
August 6-10, 2001

Electronic structure of the non-cuprate layered perovskite series $Sr_2Ru_{1-x}Ti_xO_4$ from ARPES *

M. Sing[1], R. Claessen[1], S. G. Ebbinghaus[2], R. J. Cava[3]

[1] *Experimentalphysik II, Universität Augsburg, D-86135 Augsburg, Germany*
[2] *Festkörperchemie, Universität Augsburg, D-86135 Augsburg, Germany*
[3] *Department of Chemistry, Princeton University, Princeton, New Jersey 08544, USA*

We present an investigation of the electronic structure of the non-cuprate layered perovskite $Sr_2Ru_{1-x}Ti_xO_4$, $x = 0, 0.1, 0.2$, by means of angle-resolved photoemission spectroscopy (ARPES). The overall electronic structure in the region of the valence band does not change significantly upon Ti-doping. One still observes dispersion of the corresponding spectral features. However, the spectral structure at the Fermi energy is considerably broadened with respect to the pure compound. As an example, for $x = 0.1$, we can still resolve one Fermi surface crossing along ΓX despite the strong disorder induced by the substitution of Ru-ions by Ti-ions within the RuO_2 planes. This behavior indicates that the system remains metallic. Possible further crossings as seen in the pure system may be masked by the induced broadening upon doping. We discuss the corresponding findings also for the other high-symmetry directions and doping levels in terms of the interplay between correlation, disorder, delocalization, and doping.

*This work was supported by the Deutsche Forschungsgemeinschaft (SFB 484).